



THE COMMONWEALTH OF MASSACHUSETTS
WATER RESOURCES COMMISSION

Meeting Minutes for February 10, 2000

Commission Members in Attendance:

Peter C. Webber	Commissioner, Department of Environmental Management
Mark P. Smith	Designee, Executive Office of Environmental Affairs
Jeffrey H. Kapell	Public Member
Joe Pelczarski	Designee, Massachusetts Coastal Zone Management
Marilyn Contreas	Designee, Department of Housing and Community Development
Gary Clayton	Public Member
Francis Veale, Jr.	Public Member
Russell A. Cohen	Designee, Department of Fish, Wildlife, and Environmental Law Enforcement
Richard Thibedeau	Designee, Department of Environmental Management
Lealdon Langley	Designee, Department of Environmental Protection

Others in Attendance:

Phillips D. Brady	Massachusetts Division of Marine Fisheries
Lou Wagner	Massachusetts Audubon Society
Mike Gildesgame	DEM, Office of Water Resources
Michele Drury	DEM, Office of Water Resources
Nina Danforth	DEM, Office of Water Resources
Vicki Gartland	DEM, Office of Water Resources
Linda Marler	DEM, Office of Water Resources
John Magenheimer	DEM, Office of Water Resources
Jamie Hellen	EOEA
William G. Elliot	WSCAC
Duane LeVangie	DEP
Wally Tonzack	Duxbury Department of Public Works
Carl Hillstrom	Duxbury Water Department
Steve Garabedian	USGS
Eileen Simonson	WSCAC
Susan Peck	DEP
Lorraine Downey	MWRA
Susan Redlich	WSCAC
Rich Tomczyk	EOEA, Parker and Ipswich Basin Team Leader

Agenda Item #1: Executive Director's Report

Smith reported:

- Smith and Secretary Durand will be going to a conference in Washington D.C. on February 16-17, 2000 at the invitation of David Struhs, current Secretary of Environmental Protection in Florida. The organizational meeting will be to start off a new group called the "Eastern

States Water Federation”. Its mission is to secure additional federal funding for water supply development. It is modeled after the Western States Federation.

- The Drought Management Task Force meeting is on February 23rd, 2000. The purpose of the meeting is to get an update on water resources conditions from state and federal agencies, including the National Weather Service, which will provide scenarios to the summer.
- In January 2000, there was an instream flow conference in Concord, NH, called “Ask the Experts.” Smith added there were well-attended and good discussions on what various states and organizations are doing to enhance streamflows.
- The Governor’s House 1 budget was released. Smith stated that the Watershed Initiative received \$1 million in the Governor’s budget and the \$250,000 for volunteer monitoring is also in the Governor’s budget--clearly a strong vote of support for the Watershed Initiative. The budget also proposed a change to the State Revolving Loan Fund. The proposal will make more funds available by increasing the leveraging from 2:1 to 3:1, but will change the interest rate charged to communities from 0% to 2% on loans. There is more money for Boston Harbor, Parks and DEP strategies, especially with a mercury reduction strategy. On the negative side, DEP lost money for wetland circuit riders.
- Smith discussed the Mercury Task Force and state mercury elimination initiative, which is still in the planning stages. The MWRA’s proposal to loosen the mercury limits in their pretreatment program has received national and regional attention and has provided the task force additional momentum. Webber added that he had heard of a new technology to reduce mercury in hospital waste streams in a cost-effective manner. Smith added that this was a good example of end-of-pipe technology, and that the task force was looking at pollution prevention as well.
- Drury announced that the first public hearing for the Mansfield Interbasin Transfer would take place on February 17, 2000 at the Attleboro Public Library at 7:00PM. She encouraged the WRC to attend to hear the public comments. The second hearing is on February 29, 2000. Smith encouraged all Commissioners to attend.
- Current Hydrologic Conditions Report: Marler handed out the report. Precipitation in January was near normal, but there is still a water deficit. Snow pack has not been good. Statewide precipitation deficit is about 2.7 inches. Groundwater levels for January were low in the Northeast and Southeast. Surface water levels are around normal for the state. Streamflow levels are flirting with normal, but are still below normal. The Standardized Precipitation Index and Palmer Drought Index are currently at normal. The National Climate Prediction Center has predicted the La Niña phenomenon could possibly break up in April or May. Pelczarski stated that the only significant rainfall in Central Massachusetts since last summer was Hurricane Floyd. If that storm is discounted, the deficit is around a foot.

Agenda Item #2: A Review of the Town of Duxbury’s water needs forecast

Clayton excused himself from the discussion because he did not want to be involved in regulatory decisions regarding the Duxbury water needs forecast as an employee of the Massachusetts Audubon Society.

Langley gave some background on the Duxbury water needs forecast and stated that Duxbury had come before the WRC in May 1994 for the Mayflower #2 well. The big issues were metering, withdrawals, and conservation issues. The town is registered and permitted for a total withdrawal 1.85 mgd. In 1998 their withdrawal was 1.6 mgd and in 1999 the withdrawals have been 1.4 mgd. The town has shown progress and is an example that conservation measures can

work in a short amount of time, just 5 years. In 1999, the unaccounted for water was 4.5%. Langley stated that there were other water losses due to bleeding, flushing, and filling which amounted to another 5.4%. Total water losses accumulated to 9.9%, but the 5.4% represents water losses that any water supplier would make when applying good water supply practices.

Mayflower #2, in 1999, was pumped at 0.43 mgd and represented of 11% of the annual system withdrawal. It was not used from September through December 1999. In 1998, Mayflower #2 represented 0.37 mgd for 254 days. Those withdrawals represented 16% of the annual system withdrawal.

LeVangie stated that the Water Management Program at the DEP did a 5-year review of their permit during the last calendar year. One of the conditions that was dropped during the review was the vegetative monitoring condition. Langley clarified that the vegetative monitoring was dropped and the pond level monitoring will remain under permit.

Wally Tonaszuck from the Duxbury Department of Public Works gave the WRC a presentation of the status of water use in the town of Duxbury. He also distributed a handout that included his presentation visuals. Some of the key points included:

- In 1994, Duxbury was pumping at 1.82 mgd, far exceeding permit limits, which was 1.52. He acknowledged Duxbury as one of the first communities that had to meet new water conservation and demand management requirements.
- Average withdrawals for 1994-1999 were 1.52 mgd, but in 1999 withdrawals were 1.48. These withdrawals are also satisfying the water needs of the Duxbury residents.
- Evergreen #1 and #2 are both being treated for iron and manganese.
- Had a low pond situation, but used the wells around the pond very little from September to December 1999.
- Mostly relying on the off season with the Evergreen #1 and #2 because it is the best quality water that the Town can produce.
- Tonaszuck stated that the Town of Duxbury would be coming back to the WRC in the future for permitting of two new wells to meet some summer peak demands and produce better quality water. He added that two other wells in the Town are reporting high percentages of manganese. They will be called David #1 and #2 and will hopefully be able to mitigate the manganese problem.
- LeVangie stated that the Town of Duxbury would not have to come before the WRC for those new wells unless they wanted to increase their use above an annual average of 1.85 mgd.
- In 1994, Water Use Per Capita was 94 gpd. The average for 1995-1999 was 84 gpd and the per capita use for 1999 alone was 83. Tonaszuck believes it will be difficult for the Town to beat the 1999 number. He also added that he believes the key to their success and these low numbers is the model bylaw for Conservation and Demand Management. He believes it was much more efficient to work through their problems without having to go to DEP.
- Tonaszuck added that the groundwater is down about 5 feet in Duxbury. If the Town does not get a wet spring, they might have some problems, but stated they have traditionally had wet springs.
- In 1994, the unaccounted-for water was 17%. The Town's water permit requires them to do leak detection every two years. They also replace over 500 meters a year because of their

intense meter inspection program. From 1995-1999 the unaccounted-for Water was 7% and the unaccounted-for water for 1999 alone was 4.5%.

- Tonaszuck added that they implemented a new increasing block rate structure and that the Town supports water conservation.

At this point, Tonaszuck yielded to the DEP for Info 2000 presentation, due to a time constraint of the presenter. At the end of that presentation, Smith redirected the discussion back to an open discussion about the Town of Duxbury's presentation.

Contreas asked about the date of the Town meeting when the bylaw proposal would be presented. Tonaszuck said that the wellhead protection district bylaw was passed at the Town meeting last year, but was thrown out due to a technicality: the Town newspaper forgot to advertise it. He stated the meeting will be March 11, 2000.

Gartland asked if the Town noticed any water use change during the dry summer in 1999. Carl Hillstrom, the water superintendent, stated that last June the Town of Duxbury recorded its highest rate of pumpage ever. The Town then went on a voluntary water ban, and by July 1st, was on a mandatory water ban. After that ban, water consumption rates turned around. LeVangie added that the dry summer adds to the impressive Town-wide usage of less water for the whole year. He stated that in June of 1998, the Town received almost 13 inches of rain, and in 1999, no rain, but yet at the end of the year, the Town cumulatively used less water during the year. Tonaszuck added that the Town sent crews out to enforce their water bans around the clock.

Lou Wagner of the Massachusetts Audubon Society commended the Town for their conservation measures and urged them to do more. Lou looked at the annual statistical reports and stated the Town's water use was the same in 1990 as it was in 1999 but had risen sharply in the middle of the decade. He recommended that the Town do more conservation if they expect more water demand. He also commended the agencies and WRC for efforts and continued interest in Duxbury and urged them to take this success story and use it as a model. Finally, he noted that there is legislation pending to provide seed money and technical assistance through the agencies to help communities with their water needs forecasting and demand management. The legislation is HR2006, the Water Conservation and Efficiency Bill, which would provide small amounts of money that could get communities started on water conservation. He encourage the WRC take a look at supporting that bill.

Tonaszuck responded that the Town's efforts are much more than the annual statistical reports. Population has grown considerably in the past decade, especially with affluent homes that use more water for their yards. He clarified that the two new wells that they will propose to put in are for water quality purposes and would eliminate two other wells, which have manganese problems.

Commissioner Webber asked the Town if they knew the approximate increase in service customers. Lou Wagner answered with an increase of about 10%.

Simonson of the Water Supply Citizens Advisory Committee commended Duxbury and the agencies for their work. She recommended that the WRC require that proponents do these kinds of projects before they get a well permit.

Simonson also recommended that appropriate legislation be proposed to allow the DEP to develop guidelines, standards, and models of appropriate bylaws that would allow communities to declare their own drought emergency without having to ask the DEP to declare a drought emergency for them. Twenty years ago, the Drought Task Force wanted to allow municipal officials to be able to implement and enforce drought declarations. She stated that out of the 46 MWRA communities, only 5 have the power to declare their own drought emergency. Commissioner Webber asked that she draft a plan with a cover memorandum. He then stated that he believed the topic might warrant a streamlining legislative initiative. Contreas agreed with Webber.

LeVangie indicated that a “State of Water Conservation” is allowed by local bylaw. DEP has produced a model water use restriction bylaw for communities to implement at the local level and the Watershed program sent the model bylaw to water suppliers last summer with a survey to determine how many communities have water use restriction authorities. Based on the results of the 1999 DEP survey, he thought 110 communities had bylaws in place.

David Rich added that Mashpee passed the bylaw last year and it has been a tremendous asset to the water supplier. It gives the water supplier and community the power to assess their own situation and not have to have DEP’s approval. He also believes that getting out the message that having a bylaw in place to vote on a state of water emergency or conservation is important and relevant to each community. LeVangie agreed with Rich that the tools are there and that the last step is missing: getting the message out to the town boards and communities.

Simonson recommended that the topic of potential drought bylaw legislation be brought up at the Drought Management Task Force Meeting on February 23, 2000, a meeting described in the Executive Directors Report.

Smith and Webber congratulated the Town of Duxbury once more. Webber and Smith suggested that the Town need not return to present any more updates on their water usage unless the Town would like to. Webber asked if the WRC could call upon the Town to use them as a model of success with future water use situations. The Town agreed.

The WRC decided that the Town does not need to report in person or in writing to the WRC on an annual basis.

Agenda Item #3: Info 2000 presentation by DEP

Smith interrupted the Duxbury presentation to have Susie Peck give a DEP Info 2000 presentation. Smith asked the Town of Duxbury’s representatives to stay for an open discussion after Smith’s presentation.

Smith stated that part of the WRC work plan was to bring DEP in to discuss how they are modernizing their data collection efforts.

Key points of the presentation include:

- “Entity information” is material DEP collects or is submitted by the facilities, factories, water suppliers, and other entities that DEP manages.
- Environmental data has been especially difficult to control. Most environmental data isn’t in databases.
- DEP wants to make sure that data is relevant and accurate.
- DEP is working hard to minimize duplicate data being sent to them, having data sent in one standard format, and electronically.
- DEP would also like this data to be used by all state and federal agencies, the public, water suppliers and more.
- DEP has created a steering committee that is responsible for information analysis and strategic planning at each of the regional offices. This has enabled DEP to raise the consciousness about how to get information in a database. There has been an institutional change within the agency.
- DEP hired Informational Analysts for each region and each bureau to work on information management issues, assess what is out there, where it is, and assess guideline documents.
- DEP has developed and implemented a process of selecting critical reports.

Smith asked if there was a plan to transfer the hard copy of the Annual Statistical Reports to an electronic format. Peck stated there is no project yet and no funding to do this, but DEP is trying to promote an institutional change of thought regarding electronic entry of data during projects.

Smith suggested the WRC should prioritize and allot the time to obtain key statistical data. This will allow the data that is relevant to the programs associated with the WRC to be at the top of DEP’s list. Peck suggested sending a copy of the DEP’s inventory of statistical data. Smith agreed.

Langley acknowledged that this past year was the first year annual statistical reports were provided on-line. He believes that is a small step and positive message in the direction that the DEP would like to move with their statistical inventory. He also stated that there are some concerns, including legal issues regarding electronic reporting and that some BRP tracking functions and databases are discrete to specific programs to regional staff. There are also issues regarding the security of data on the internet. DEP is considering obtaining technical assistance on these issues. He believes that the WRC should work on this but the DEP does have some issues to resolve that might require some time. David Rich congratulated the DEP and Lealdon Langley for getting their annual statistical report on the internet. For water suppliers it is a huge step to fill in and send back their reports to the DEP.

Veale suggested that private entities should get involved financially and supply data. Peck replied that the DEP has looked into this but has not gotten too far along. Smith suggested that this Info 2000 initiative by DEP should not be solely a DEP initiative, and that all state environmental agencies should adopt their tactics and help the DEP in this process.

Agenda Item #4: USGS Presentations on the new internet application and the Ipswich model

Gartland reminded the WRC that the USGS cooperative program with the state is under the aegis of the Water Resources Commission. DEM acts as the agency that pays the bills, goes to meetings, and helps make decisions, but this is a broad, statewide program. Gartland recommended that if anyone has any ideas for future studies under the program to please let her know. She also reminded the WRC that the state has been cooperating with USGS on stream gaging since 1909. This gaging is funded through a bond that DEM needs reauthorization every 3-5 years. Smith reported that EOEA has an emergency bond authorization under consideration. Webber suggested that the WRC draft a letter to the Secretary to get reauthorization well before the next WRC meeting in March. Webber added that he would follow up on that letter.

Gartland acknowledged that the two projects that are being presented are funded through the cost-sharing chapter 800 program. For every dollar we spend, USGS spends a dollar.

Steve Garabedian from USGS presented both project updates. First, he presented the Streamflow Statistics Internet Application. Garabedian gave a simulation of what it would be like to go through the website and discussed some of the information one could get off the website. He could not discuss all it had to offer due to time. He encouraged everyone to test the site out at: <http://ma.water.usgs.gov/streamstats/expert.htm>. Some of the key points were:

- The supporting documentation is called “Methods for Estimating Low Flow Statistics for Massachusetts Streams,” which will come out in a Water Resources Investigation Report and will not be ready for another few months. The website will be ready to the public when that supporting documentation is ready.
- The objective was to develop a method, or set of equations (20+ equations), for estimating streamflow statistics at ungaged sites.
- There are 88 sites that USGS currently monitors, but this project developed equations to estimate streamflows at sites that are not monitored.
- To accompany that component of the project, USGS developed an internet site which provides streamflow statistics for specific sites. Statistics include flow values and statistics for undeveloped watersheds without major regulation and various amounts of information about each drainage basin.

Garabedian noted that this site and type of data collection is unique among the states, and these statistics are based on information that Kernell Ries (project scientist) regressed from smaller, unregulated, undeveloped river basins.

Cohen recommended that USGS put some disclaimers about how these statistics are regressed from smaller, unregulated, undeveloped river basins. Garabedian answered that those disclaimers were in the beginning and that web site users will not be allowed into the internet site without reading those disclaimers.

Simonson stated that if we had federal money that could provide percentage of land cover from impervious surface, we could find out what development does and does not do and what the

whole concept of stream buffers do. Garabedian responded that this information will be available from the DEP GIS Tools.

To start off the Ipswich model presentation, Gartland acknowledged that to accomplish this work, USGS had a lot of cooperation and input from the Ipswich River Task Force, Ipswich River Watershed Association, and the public. She suggested that the WRC put together an addendum on this project about the conclusions and how the state can get involved to further USGS' efforts. She then asked Garabedian to continue. Some of the key points were:

- The watershed model is a set of mathematical equations or expressions that simulate the hydrologic processes in a watershed. The tool can also evaluate effects land use and water use practices have on streamflow.
- The model they used is called HSPF, or Hydrological Simulation Program in Fortran.
- Some of the data that goes into the watershed model is rainfall run-off mechanisms, stream routing, surface water withdrawal, basin characteristics (climate, hydrologic response units, land use, water use, geology, etc.), water use data (major towns that are entirely in the basin), and ground water pumpage in the basin.
- There are 67 different stream reaches simulated in the basin.
- USGS used two different stream gauges to calibrate the model, the South Middleton gage, and the Ipswich gage.
- There are approximately 85 permitted water withdrawals in the model. These withdrawals supply 330,000 customers on public water supply, and over 200,000 are out of basin. 80% of the water withdrawn is discharged outside the basin.
- Mean annual streamflow is 150 million gallons per day (mgd) or 230 cubic feet per second (cfs). Mean annual public withdrawals are 34 mgd. During August, the mean streamflow is 30 mgd or 45 cfs. Peak summer time water usage is 56 million gallons per day.
- Some of the scenarios tested from the model were:
 1. Removing all withdrawals from model (No water use);
 2. Remove groundwater withdrawals;
 3. Remove surface water withdrawals;
 4. Long term precipitation with 1991 land use with no withdrawals;
 5. Long term all undeveloped land with no withdrawals;
 6. Long term 1991 land use with withdrawals.
- At the South Middleton gage, low flows are an order of magnitude lower with groundwater withdrawals. Without groundwater withdrawals, the 7Q10 flow goes from 0.5 cfs to 5 cfs at South Middleton gage. Surface water withdrawals have little influence on low flow because of water permit restrictions.
- Time series simulations for 1989 to 1993 showed river flows with no surface water withdrawals are roughly equivalent to those with the surface water withdrawals.
- The flow duration curve with surface water withdrawals is roughly the same as without surface water withdrawals because the surface water withdrawals are only skimming the high flows.
- Surface water withdrawals are made during high flow and cool weather. This does not affect the flow duration curve at the high or low end, because the withdrawals are adequately regulated, represent a relatively small percentage of the high flow, and are intermittent.
- Ground water withdrawals cause an order of magnitude reduction in low flows.

There is an accompanying habitat model that USGS is currently developing for the Ipswich River. Smith recognized the USGS for its work and noted that the New England office is getting national attention for this project. Cohen stated that he believed that if people weren't taking groundwater during the low flow periods then the river might not be in that much trouble.

Clayton asked about the cost and if this could be done for other basins. Gartland answered the total cost was about \$500,000 and that savings for other basins wanting to do this study would be little because of all the site-specific data needed. He also noted that you probably do not need this much detailed information to make healthy water resources decisions. Gartland also recognized that the habitat piece is not done yet. The model and the habitat study will let us learn things we can use in other basins.

Rich Tomczyk stated that the model will allow better management of the system. He is curious to see what happens under different scenarios. He would like to get the Ipswich Team to develop different scenarios on wastewater disposal in the upper basin. Smith agreed and is eager to see if money can be obtained for the Ipswich team to experiment with different scenarios. Smith would also like to see how this model can be applied to the other 26 basins in Massachusetts and to help out with the stressed basin criteria.

Langley asked if he could obtain the site-specific data about wastewater disposal sites from Tomczyk. That would assist DEP to start taking a closer look at basin issues. Smith recommended developing a comprehensive list of scenarios and costs. He also recommended talking about an addendum to the Ipswich River Basin Plan by the WRC.

Garabedian stated that the habitat piece of the model will be completed in a month or so and would be ready for a presentation to the WRC by late spring. He also mentioned that he would be able to provide copies of the Ipswich model by the end of March. He also recommends that people read it over for a couple weeks and then have a meeting/public presentation with the scientists of the project.

Agenda Item #5: Agenda Item #5 was skipped due to time constraints

Agenda Item #6: Approval of the Year 2000 Work Plan

Clayton asked if the dates on the work plan indicate when the project would come before the WRC or when the work will be completed in some fashion. Smith responded that these are the dates for presentation or completion of various portions of the items.

V O T E	Gary Clayton moved and Jeff Kapell seconded a motion to:
	To approve the Year 2000 Work Plan as presented.
	The motion was approved by unanimous vote.

The meeting was adjourned.

Minutes approved 8/10/00